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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/783,864
Filing Date: February 23, 2004
Appellant(s): UEBERSCHAR ET AL.

Max W. Garwood
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 23, 2009 appealing from the Office action mailed February 26, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on April 24, 2009 has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

(A) As to Ground A (the rejection of claims using Nakamura in view of Finnicum, Bulow and Japan '129), claim 35 was not rejected under this ground (although listed as such by appellant). The claims rejected using this combination of references are 24-33, 38, 39, 41-44 and 46.

(B) As to Ground B, claim 35 was rejected using the combination of Nakamura in view of Finnicum, Bulow and Japan '129, and further in view of Shay (not Nakamura in view of Finnicum and further in view of Shay, as listed by appellant).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,230,743	NAKAMURA ET AL	10-1980
5,206,057	FINNICUM ET AL	4-1993
5,908,668	BULOW ET AL	6-1999
5,192,592	SHAY	3-1993
06-262129 A	JAPAN	9-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Ground A. Claims 24-33, 38, 39, 41-44 and 46 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (US 4230743) in view of Finnicum et al (US 5206057), Bulow et al (US 5908668) and Japan 06-262129 (hereinafter '129).

Claims 24, 39 and 46: Nakamura teaches a method of adding layers to a material web. *Figure 4 and column 1, lines 10-15.* The web can be paper. *Column 13, lines 5-15.* At least one first layer of a first application medium is applied to the web. *Figure 4 and column 7, lines 1-15 (from the first coating apparatus).* At least one second layer of a second application medium is applied to the web. *Figure 4 and column 7, lines 1-15 (from the second coating apparatus).* The application mediums are liquid or pasty. *Column 7, lines 60-65, and column 12, lines 30-40.* The first application medium (the microcapsule containing medium) can have a solids content of 10-60 wt%. *Column 7, lines 1-10 and 60-68.* The second application medium (the color developer) can have a solids content of 10-60 wt%. *Column 7, lines 1-10 and column 12, lines 30-40.* The viscosity of the first medium can be 20 to 200 centipoise (=mPas). *Column 7, lines 60-68.* The viscosity of the second medium can be 10.8 or 19.5 centipoise (=mPas). *Column 15, lines 60-65 and column 16, lines 55-60.* The first and second application mediums can be applied to the web in the form of curtains. *Figure 4 and column 7, lines 1-15.* The apparatus for applying the layers can include a first curtain applicator unit with a first discharge nozzle,

whereby the first medium is discharged as a first curtain onto a moving web base under the force of gravity. *Figure 4 and column 7, lines 1-15.* A second curtain applicator unit with a second discharge nozzle is provided for providing the second medium as a second curtain onto a moving web base under the force of gravity. *Figure 4 and column 7, lines 1-15.* The second applicator is positioned relative to the first applicator such that the first coating is still wet when the second coating is applied. *Figure 4 and column 7, lines 1-15.* The first application medium can be applied with the first curtain coater in an amount of 3.4 l/min (3400 ml/min) for a slit length of 800 mm (0.8 m) at a speed of 300 m/min. *Column 17, lines 35-45 (sample 9).* This provides an application amount of 3400/(.8 x 300) = 14 ml/m^2 (within the claimed range). The second application medium can be applied with the second curtain coater in an amount of 4.7 l/min (4700 ml/min) for a slit length of 800 mm (0.8 m) at a speed of 300 m/min. *Column 17, lines 35-45 (sample 9).* This provides an amount of 4700/(.8 x 300) = 19.58 ml/m^2 (within the claimed range).

Claim 25: the water retention capability of the second application medium can be higher than that of the first application medium, as the amount applied of each material can be roughly the same and the second medium can contain an absorptive material, such as clay, not found in the first medium. *Column 10, lines 25-40 and column 13, lines 30-40.*

Claim 26: the density of the first application medium can be significantly greater than the density of the second application medium, given that in Example 2, for

example, the first medium has a significantly higher solids content than the second medium, indicating its greater weight. *Column 15, lines 35-65.*

Claim 27: the viscosity of the first medium can be higher than that of the second medium, given that the viscosity of the first medium is taught to be 20 to 100 centipoise, while the viscosity of the second medium can be as low as 10.8 centipoise. *Column 7, lines 60-68 and column 15, lines 55-65.*

Claim 28: the first medium, for example, can be an aqueous solution or dispersion of solid particles. *Column 7, lines 60-65 and column 10, lines 1-10 (the solid particles).* The second medium can also contain solid particles, such as clay as an aqueous solution or dispersion. *Column 12, lines 30-40 and column 10, lines 25-35.*

Claim 29: the first medium can be a butadiene-styrene dispersion. *Column 9, lines 50-55.* The second medium can be a butadiene-styrene dispersion. *Column 12, lines 40-45 and column 15, lines 55-65.*

Claim 30: the solid particles can be mineral pigments or plastic particles. *Column 10, lines 5-20.*

Claim 31: the solid particles can be plastic, microcapsules or starch. *Column 10, lines 5-20.*

Claim 32: the first medium can have solids content of 10-60 wt%. *Column 7, lines 60 – 68.* The viscosity can be 20 to 100 mPas. *Column 7, lines 60-68.* The first medium can be a barrier layer, to the extent that the surface is covered and a protective mateiral is also present. *Column 10, lines 1-10.*

Claim 33: the first application medium can be a starch solution. *Column 10, lines 5-10 (note the presence of starch).*

Claim 38: the curtain applicators apply the mediums, respectively, onto the moving web base in a substantially finally metered manner. *Figure 4 and column 7, lines 1-25.*

Claim 41: the curtain heights of the first and second curtains can be about 10 to 20 cm (100 to 200 mm). *Column 13, lines 40-45.*

Claim 42: the first curtain applicator can discharge the first medium at 3.4 l/min for a width of 800 mm (0.8 m). *Column 17, lines 35-45 (sample 9).* This gives 3.4/0.8 = 4.25 l/min per meter of width. The second curtain applicator can discharge the first medium at 4.7 l/min for a width of 800 mm (0.8 m). *Column 17, lines 35-45 (sample 9).* This gives 4.7/0.8 = 5.875 l/min per meter of width.

Claim 43: the web base speed can be 1000 m/min. *Column 5, lines 35-40.* For example, the speed can be 300 m/min. *Column 17, lines 35-45.* The web base can be paper, such as art paper. *Column 13, lines 5-15.*

Claim 44: the coating amount can be greater than 4 g/m^2 for each layer. *Column 13, lines 30-40.* The web base can be paper, such as art paper. *Column 13, lines 5-15.*

Nakamura teaches all the features of these claims except (1) that the viscosity is measured as a Brookfield viscosity determined at 100 rev/min (claim 24, 39, 46), (2) the density (claim 32), (3) the distance between the first and second applicators (claim 24, 39, 46), (4) the exact amount of material (claim 44), (5) the pressure differential in a

space partially bounded by the first and second curtains with negative pressure (claim 24) or positive pressure (claim 46) in the space, (6) the vacuum/positive pressure device positioned between the two applicators (claim 39), (7) the enclosure of the space using the various elements as now required by claim 24, 39 and 46, (8) the guideblades (claims 24, 39, 46), and (9) the doctor element (claim 24, 39, 46).

However, Finnicum teaches that when curtain coating, it is well known to position a pressure differential device that can provide a vacuum or positive pressure in a space partially bounded by the curtain. *Figures 1, 3 and 7 and column 3, line 40 through column 4, line 40 and column 5, lines 1-40.* The pressure differential space can be such that the space is provided before the curtain in the direction of movement of the web, with the front wall being the curtain. *Figures 1 and 3 and column 3, line 40 through column 4, line 40.* As well, the space can be provided behind the curtain in the direction of movement of the web, with the back wall of the space being the curtain. *Figure 7 and column 5, lines 1-40 (pressure zones can be on both sides of the curtain or only upstream or downstream of the curtain).* The system provides for moving the line of impingement on the curtain on the substrate without disturbing the uniform flow of the curtain. *Column 2, lines 65-68.* As a result of this system the optimal shape of the curtain can be provided and a stable curtain provided. *Column 4, lines 10-20.*

Bulow teaches to provide a curtain coating applicator unit (pouring head 1) with a discharge nozzle (slot) through which application medium discharges through the nozzle in the form of a curtain onto a moving substrate under the force of gravity.

Figure 1 and column 3, lines 40-55. Bulow further teaches that it is desirable to position a guideblade (baffle plate 2 with deflector surface 20) immediately adjacent to the discharge nozzle such that the coating medium exiting the discharge nozzle falls onto the guideblade and is guided by the guideblade along at least part of the curtain flow path. *Figures 1-2 and column 3, lines 50-68.* The guideblade guides the entire width of the curtain as it is wider than the curtain. *Figure 1.* The use of this guideblade reduces the presence of undesirable blobs in the applied coating and provides homogeneous distribution of the coating. *Column 4, lines 15-25.*

'129 teaches to provide a curtain coating applicator unit (4) with a discharge nozzle through which application medium discharges through the nozzle in the form of a curtain (8) onto a moving substrate (1) under the force of gravity. *Figure 1, abstract and paragraph [0014].* '129 further teaches that it is desirable to set a doctor element (18) against a surface of the substrate, such that the doctor element intercepts the curtain and leads the first curtain to the moving substrate. *Figure 1, abstract and paragraphs [0012], [0014]– [0015].* The presence of this doctor blade prevents air that is carried by the substrate from contaminating the applied coating. *Paragraphs [0011], [0015].* '129 also provides that a nozzle 21 can supply coating or solvent to the upstream of the doctor blade 18 *(paragraph [0013] and figure 1)*, but this is optional *(paragraphs [0017] (coating without using pump 20 and nozzle 21), [0026]).*

It is the Examiner's position that it is well known to measure viscosity using a Brookfield system determined at 100 rev/min. As appellant has not traversed this position from the Oct. 3, 2005 Office Action, it is understood to be admitted prior art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) modify Nakamura to provide that the viscosity is within the claimed range when measured using the Brookfield system determined at 100 rev/min, because Nakamura teaches a range of 20-100 centipoise viscosity without telling precisely how it is measured, and it is the Examiner's position that the use of a Brookfield system to measure the viscosity is a well known way of measuring viscosity, and this system's use would give a way to measure and provide the desired viscosity of Nakamura when performing the process of Nakamura, which would give a viscosity in the claimed range. (2) It would further have been obvious to provide a density within the claimed range when performing the process of Nakamura, as Nakamura teaches to use an aqueous base and gives a range percentage of solids of defined additive materials, which would provide densities in the claimed range when optimizing through routine experimentation. (3) It would further have been obvious to modify Nakamura to perform routine experimentation to optimize the distance between the first and second applicators, because Nakamura teaches to apply the second coating while the first coating is still wet, and therefore, the second applicator must be close enough to the first applicator for this to occur, based on the materials used and the speed of the coating, and one of ordinary skill in the art would optimize to determine

the best distance. (4) It would further have been obvious to modify Nakamura to perform routine experimentation to optimize the exact amount of material to be applied based on the materials to be used, because Nakamura teaches to apply more than 4 g/m^2 of material for each layer, and one would optimize from the wide range provided, which would overlap that claimed. (5) (6) (7) It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Nakamura to provide a pressure differential device providing positive pressure or vacuum in a space partially bounded by the first and second curtains of the two applicators as suggested by Finnicum with an expectation of desirable coating results by shielding the curtain and providing proper positioning of the curtain, because Nakamura teaches curtain coating with two devices in series, and Finnicum teaches the desirability of placing a pressure differential system providing positive pressure or vacuum directly before and/or after the curtain of a curtain coating device in the direction of movement of the web and partially bounded by the curtain. Because of the two curtains of the system of Nakamura, pressure differential systems as described by Finnicum would be provided on both sides of the two curtains, which would suggest providing a single pressure differential system between the two curtains that is bounded by both of the curtains for efficient use of the space between the curtains while still providing the pressure differential system on the rear side of the first curtain and the front side of the second curtain (in the direction of movement of the web). This pressure differential system would provide a pressure differential in a space between the first and second

curtains relative to an ambient atmospheric pressure, which could be either positive or negative (vacuum) pressure as described by Finnicum. As a result of using this suggested single pressured differential system between the two curtains, the space between the two curtains would be enclosed by using the application medium curtains coming from said first curtain applicator unit and said second curtain applicator unit (providing the front and back sides of the enclosure) (see figure 4 of Nakamura, for example), the paper web (providing the bottom of the enclosure) (figure 4 of Nakamura, figure 7 of Finnicum, the curtains fall on a moving web that passes from curtain to curtain), and the use of the first and second applicator units (providing parts of the top of the enclosure) (figure 4 of Nakamura, note the applicator heads extending towards each other, and figure 7 of Finnicum, note the applicator head forming the top part of the enclosure), along with the "pressure differential system" also providing part of the enclosure as it is attached (see Finnicum, figure 7, for example). This pressure differential system would be in the form of a "suction/blower box" as claimed, because as noted by Finnicum the pressure differential system provides vacuum (suction) or air (blowing) into the enclosure (column 3, lines 64-68 and figure 7), meaning that the vacuum/positive pressure device, at least where it entered the enclosure would need to be positioned between the two applicators to provide the connection and suction/air to the space. The space would have to be "enclosed" or "sealed" to the extent claimed so as to maintain the desired pressure differential as shown by Finnicum. The pressure would be provided as either a positive or negative pressure, through the routine

experimentation to optimize the pressure in the enclosed zone to provide the optimum stable, uniform curtains (column 4, lines 10-20 of Finnicum), and therefore, the suggestion to provide either positive and negative pressures would be provided based on the specific curtain being applied. As to the enhancing of the wetting from the negative pressure (claim 24) or stabilizing the curtain from the positive pressure (claim 46), the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

(8) It would further have been obvious to modify Nakamura in view of Finnicum to use guideblades as suggested by Bulow under each discharge nozzle in order to provide homogeneous coating without undesirable blobs because Nakamura in view of Finnicum teaches providing two curtain coating applicator units where coating falls from discharge nozzles in the form of curtains and Bulow teaches that when using curtain coating applicator units where coating falls from discharge nozzles in the form of curtains onto moving substrates, it is desirable to provide a guideblade across the width of the discharged coating immediately adjacent to the discharge nozzle in order to provide homogeneous coating without undesirable blobs.

(9) It would further have been obvious to modify Nakamura in view of Finnicum and Bulow to provide a doctor element against a surface of the paper web, such that the doctor element intercepts the first curtain and leads the first curtain to the paper web as

suggested by '129 in order to prevent undesirable air contamination of the applied coating because Nakamura in view of Finnicum and Bulow teaches providing two curtain coating applicator units where coating falls from discharge nozzles in the form of curtains and '129 teaches that when using curtain coating applicator units where coating falls from discharge nozzles in the form of curtains onto moving substrates, it is desirable to provide a doctor element intercepts the curtain and leads the curtain to the substrate so that undesirable air contamination does not occur, which in the process suggested by the combination of references would suggest that this treatment be provided to the first curtain, which is exposed to incoming air.

Ground B. Claim 35 stands finally rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Finnicum, Bulow and '129 as applied to claims 24-33, 38, 39, 41-44 and 46 above, and further in view of Shay (US 5192592).

Nakamura in view of Finnicum, Bulow and '129 teaches all the features of this claim except the ink filled microcapsules. Nakamura teaches that microcapsules can be provided in the first coating as part of the protective agent, where the microcapsules are filled with other than color developer. *Column 7, lines 1-10 and 60-65 and column 10, lines 1-10 (microcapsule powders at line 10, for example).* The microcapsules can be 3-50 microns is size. *Column 10, lines 10-20.* The solids content of the first coating can be 10-60 wt%. *Column 7, lines 60-68.* The viscosity of the first coating can be 10-200 centipoise (=mPas). *Column 7, lines 60-68.*

However, Shay teaches that it is known to provide aqueous coatings of styrene-butadiene latex, clay, starch, calcium carbonate and ink capsules. *Column 6, lines 45-55.* The solids content of this coating can be about 50 wt%. *Column 6, lines 55-60.* Shay teaches that the taught coatings can be commonly applied by blade, roll and curtain coating processes. *Column 5, lines 50-60.*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura in view of Finnicum, Bulow and '129 to use ink filled microcapsules as suggested by Shay with an expectation of desirable coating results, because Nakamura in view of Finnicum, Bulow and '129 teaches that microcapsules filled with other than developer can also be used in the first coating and Shay teaches that it is well known that capsules of ink can be curtain coated, with Nakamura providing microcapsule sizes, solid contents and viscosities overlapping that claimed, and it is obvious to optimize the optimum conditions from within the ranges given.

(10) Response to Argument

Ground A. Rejection of claims 24-33, 38, 39, 41-44 and 46 under 35 USC 103(a)

1. The Teaching of the Cited References

Appellant first provides a statement as to the teaching of the cited prior art at pages 15-16 of the Appeal Brief of July 23, 2009.

2. Claims 24-33, 38 and 41-44

At pages 16-19 of the Appeal Brief, appellant argues that claims 24-33, 38 and 41-44 are patentable. Appellant first provides a quotation from claim 24 at pages 16-17 of the Appeal Brief. Then, at page 17 of the Appeal Brief, appellant argues that none of the references teach the enclosing of a space as claimed, since Nakamura is obviously open and Finnicum discloses the existence of a space between the web and the walls.

The Examiner has reviewed this argument, however her position is maintained. While neither reference specifically provides for the exact format of the enclosing as claimed, it is the combination of the references that provides the suggested single pressure differential system that has the same bounding elements (curtain mediums, applicator units, paper web, and suction/blower box). As discussed in the **Grounds of Rejection** above, the combination of Nakamura and Finnicum would provide these enclosure features when providing the suggested single pressure differential system in the space partially bounded by the first and second curtain as claimed. As a result of using this suggested single pressured differential system between the two curtains, the space between the two curtains would be enclosed by using the application medium curtains coming from said first curtain applicator unit and said second curtain applicator unit (providing the front and back sides of the enclosure) (see figure 4 of Nakamura, for example), the paper web (providing the bottom of the enclosure) (figure 4 of Nakamura, figure 7 of Finnicum, the curtains fall on a moving web that passes from curtain to curtain), and the use of the first and second applicator units (providing parts of the top of the enclosure) (figure 4 of Nakamura, note the applicator heads extending

towards each other, and figure 7 of Finnicum, note the applicator head forming the top part of the enclosure), along with the "pressure differential system" also providing part of the enclosure as it is attached (see Finnicum, figure 7, for example). This pressure differential system would be in the form of a "suction/blower box" as claimed, because as noted by Finnicum the pressure differential system provides vacuum (suction) or air (blowing) into the enclosure (column 3, lines 64-68 and figure 7). The overall space would have to be "enclosed" or "sealed" to the extent claimed, at least using the elements above as part of the enclosure structure, so as to maintain the desired pressure differential as shown by Finnicum. In other words, the controlled pressure spaces in Finnicum are separated or kept apart from the surrounding atmosphere by the enclosure system. The Examiner notes that as worded, claim 24 requires ". . . enclosing said space . . . using said first curtain applicator unit . . ." (emphasis added). As worded, the listed components, therefore, must be used to enclose the space, but other elements can also be present to provide part of the enclosing, such as side walls or a top ceiling between the two applicators, or even the gas pressure in the system. Appellant argues that Nakamura is obviously open between the two applicators, but as previously noted above, when using the suggestion of the single pressure differential system, a sealed/enclosed space would have to be provided between the applicators using side walls, ceiling or other sealing means so that the pressure differential can actually be maintained. Appellant does not claim, for example, that a chamber of solid walls entirely surrounds the space. Similarly, while appellant argues that Finnicum discloses

a space existing between the web and walls (which would be the side walls in the combined teaching of Nakamura and Finnicum, since the curtain acts as the front and back sides of the enclosure), this does not prevent the enclosure from being present as claimed. Appellant provides no mention of side walls at all in the listing of the enclosure elements, so it is unknown if appellant's side walls would have a space between the walls and the web. In any case a space between a wall and a web does not prevent the space from being "enclosed" or "sealed", because the pressure within such a space can have a controlled pressure differential as described by Finnicum (column 4, lines 20-35), and thus is "enclosed" or "sealed" away from the outside atmosphere. As noted, the claim does not require that every bit of the enclosing be done with the specifically listed elements in the claim, and in fact, it would be hard to see how it could be "enclosed" with only those elements, since nothing is listed (as described or pictured in the present disclosure) that would seal off or enclose the sides of the system between the first and second curtains to allow the claimed pressure differential. As a result, the enclosure as claimed would allow for the presence of small gaps, as long as the claimed features are present, including the space that would be separated from the surrounding atmosphere; and as noted above, these features would be suggested by the combination of Nakamura and Finnicum.

Appellant also argues, at page 17 of the Appeal Brief, that none of the references teach the enhancement of wetting by providing a negative pressure in the space that is bounded by the curtain as in claim 24, and that the present invention is taught away

from by Finnicum, in that the wall precludes the enhancement step brought about by the interaction of the space and the two application mediums.

The Examiner has reviewed these arguments, however, her position is maintained. As to the enhancing of wetting by using negative (vacuum) pressure, this would follow from providing the suggested pressure differential system and optimizing the specific pressure differential provided, for the particular curtain system used, as Finnicum suggests to optimize the pressures used in the enclosed area bounded by the curtain to provide optimum stable, uniform curtains (column 4, lines 10-20 of Finnicum). Finnicum would indicate that "negative" pressure can be provided, because Finnicum provides that the described system can provide the air pressure control by withdrawing air from the pressure controlled zone (column 3, lines 60-68 and column 4, lines 8-15). As to the enhancing of the wetting from the negative pressure, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985), as the enhancing wetting as claimed simply follows from providing the negative pressures. In fact, Finnicum even notes the desire for a stable curtain and satisfactory coating product (column 4, lines 15-20) and Nakamura the desire of wetting between the two layers (column 7, lines 1-15, apply second layer before first has dried), suggesting to optimize conditions of application for wetting, as well. As to the wall of Finnicum teaching away from the enhancement step brought

about by the interaction of the space and the two application mediums, the Examiner disagrees with this position. Finnicum is described with regard to a single applicator curtain, therefore the curtain is described as acting as one wall of the enclosure (column 5, lines 1-8) and a different solid wall 21, for example, is provided as the other wall of the enclosure (column 3, lines 50-60 and figure 1). This indicates the need for an enclosure system with walls. However, the combination of Nakamura and Finnicum is what suggests that if two curtain applicators are present, each curtain can serve as a wall. Finnicum does not teach against this use as Finnicum clearly indicates that a wall of the enclosure system can be formed from the curtain (front or rear wall, column 5, lines 25-35, since the pressure zone can be on either side of the curtain), and actually provides no requirement as to what wall 21 is to be formed from.

Appellant also argues, at page 17 of the Appeal Brief, that none of the references teach the combination of a doctor element intercepting a curtain that has flowed over a guideblade as claimed. Appellant goes on to argue, at pages 17-18 of the Appeal Brief, that as a result of this stabilization of the curtain, benefits as to the total falling height of the curtain, and extent of the force of gravity which can be achieved overall can be increased, without penalties with regard to the quality of application medium layer, and allows approaching more closely the film stretching limit.

The Examiner has reviewed these arguments, however, her position is maintained. The suggestion as to the use of a guideblade over which the curtain flows is provided by Bulow; and the suggestion as to the use of a doctor element (blade) that

intercepts the falling curtain is suggested by '129 as described in the **Grounds of Rejection** above. While Bulow does not individually teach to have the curtain from which the guideblade flows to be intercepted by a doctor element, and '129 does not individually teach that the curtain which is intercepted by the doctor element first falls from a guideblade, the combination of Nakamura in view of Finnicum with Bulow and '129 clearly provides this suggestion. Bulow provides desirable benefits to be gained by using a guideblade over with the curtain flows and '129 provides desirable benefits to be gained by intercepting a falling curtain with a doctor element (see the description of the benefits in the **Grounds of Rejection** above). One of ordinary skill in the art would be suggested to provide both the guideblade and the doctor element as claimed to achieve the combined benefits when curtain coating. Appellant refers to benefits from the stabilization of the curtain (described at page 5, line 20 through page 6, line 4 of the present specification). It is unclear if applicant is (a) referring specifically to benefits from the use of the guideblade and doctor element, in which case, the Examiner notes that benefits would already be expected from the benefits taught by Bulow and '129 as discussed above, and the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985), or (b) referring to benefits caused by the entire combination of features of claim 24, in which case, the Examiner notes that benefits would also be expected from the combination of Nakamura in view of

Finnicum, Bulow and '129 as discussed in the **Grounds of Rejection** above, and, again, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). The Examiner further notes that statement of benefits from the stabilization is a mere listing of benefits and no showing as to this issue with comparative data or the like has been made.

At page 18 of the Appeal Brief, appellant further argues that they disagree with the Examiner's position in the May 5, 2009 Advisory Action that the wall of Finnicum shows a need for an enclosing means, with space indicated to exist between the curtain the enclosing wall of Finnicum. As well, appellant argues, the interaction between the two curtains as part of the enclosed space, as presently claimed, allows an interaction between the two curtains that is not disclosed or anticipated by the combining of the art as cited. At pages 18-19 of the Appeal Brief, appellant argues that the invention has distinct advantages in combining of the elements of enclosing the space so the pressure therein is utilized to affect the coating characteristics, and more particularly, the application of a positive or negative pressure in the space to enhance the wetting or stabilized the curtain falling from a guideblade positively influenced.

The Examiner has reviewed these arguments, however, her position is maintained. As discussed above, it is her position that the wall of Finnicum does show a need for an enclosing means. While a space is indicated to exist between the curtain

and the rear wall 21 of Finnicum (see Figure 1 of Finnicum), with Finnicum indicating that the curtain acts as one wall (column 5, lines 1-10), the Examiner notes that in the rejection above, it is indicated that the further curtain will act as the other wall of Finnicum when two curtains are provided in series from the combination with Nakamura. Thus, with the one curtain in the original curtain position of Finnicum and the other curtain of the two applicators in the rear wall position 21 of Finnicum (acting as another wall), there will still be space between the two "walls" formed by the two curtains. While Figure 7 of Finnicum shows a further embodiment with solid walls on either side of the curtain, the curtain is still a wall since pressure controlled zones are provided on either side of the curtain with the curtain forming "one side of a pressure controlled zone" (column 5, lines 20-25). As well, Finnicum goes on to say that only one zone is needed, either upstream or downstream of the curtain (column 5, lines 29-35), indicating that there can be a zone provided upstream or downstream of the curtain. One solid wall for the zone would be replaced by another curtain when combined with Nakamura as previously discussed. As to the argument that the interaction between the two curtains allows an interaction not disclosed or anticipated by the combination of the cited art, the Examiner is of the position that the combination of the references suggests using a single zone between the two curtains for the reasons discussed in the **Grounds of Rejection** and above. Applicant has provided no showing that the interaction of having a single zone, as opposed a separate pressure zone provided for each curtain will have any specific improved effect on the coating. Finnicum

specifically provides of using the pressure zone with the curtain to improve curtain stabilization (column 4, lines 10-20), and therefore this would be expected when using the combined zone system, as well. The benefits of the pressure utilization to enhance wetting or stabilization of the curtain are suggested by Finnicum and the guidblade/doctor element features and improvements are suggested by Bulow and '129. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Furthermore, appellant has provided no showing of any improvements as compared to the prior art or beyond what is expected.

3. Claim 46

At page 19 of the Appeal Brief, appellant provides a quotation from claim 46, with the same features as claim 24, except that instead of "enhancing the wetting of the curtain medium from the second curtain to said medium from the first curtain by providing a negative pressure in the space" (claim 24), claim 46 provides "stabilizing said first curtain and said second curtain by applying a positive pressure in said space". At pages 19-20 of the Appeal Brief, appellant argues that none of the references teach the enclosing of a space as claimed, since Nakamura is obviously open and Finnicum discloses the existence of a space between the web and the walls.

The Examiner has reviewed this argument, however her position is maintained. While neither reference specifically provides for the exact format of the enclosing as

claimed, it is the combination of the references that provides the suggested single pressure differential system that has the same bounding elements (curtain mediums, applicator units, paper web, and suction/blower box). As discussed in the **Grounds of Rejection** above, the combination of Nakamura and Finnicum would provide these enclosure features when providing the suggested single pressure differential system in the space partially bounded by the first and second curtain as claimed. As a result of using this suggested single pressured differential system between the two curtains, the space between the two curtains would be enclosed by using the application medium curtains coming from said first curtain applicator unit and said second curtain applicator unit (providing the front and back sides of the enclosure) (see figure 4 of Nakamura, for example), the paper web (providing the bottom of the enclosure) (figure 4 of Nakamura, figure 7 of Finnicum, the curtains fall on a moving web that passes from curtain to curtain), and the use of the first and second applicator units (providing parts of the top of the enclosure) (figure 4 of Nakamura, note the applicator heads extending towards each other, and figure 7 of Finnicum, note the applicator head forming the top part of the enclosure), along with the "pressure differential system" also providing part of the enclosure as it is attached (see Finnicum, figure 7, for example). This pressure differential system would be in the form of a "suction/blower box" as claimed, because as noted by Finnicum the pressure differential system provides vacuum (suction) or air (blowing) into the enclosure (column 3, lines 64-68 and figure 7). The overall space would have to be "enclosed" or "sealed" to the extent claimed, at least using the

elements above as part of the enclosure structure, so as to maintain the desired pressure differential as shown by Finnicum. In other words, the controlled pressure spaces in Finnicum are separated or kept apart from the surrounding atmosphere by the enclosure system. The Examiner notes that as worded, claim 46 requires ". . . enclosing said space . . . using said first curtain applicator unit . . ." (emphasis added). As worded, the listed components, therefore, must be used to enclose the space, but other elements can also be present to provide part of the enclosing, such as side walls or a top ceiling between the two applicators, or even the gas pressure in the system. Appellant argues that Nakamura is obviously open between the two applicators, but as previously noted above, when using the suggestion of the single pressure differential system, a sealed/enclosed space would have to be provided between the applicators using side walls, ceiling or other sealing means so that the pressure differential can actually be maintained. Appellant does not claim, for example, that a chamber of solid walls entirely surrounds the space. Similarly, while appellant argues that Finnicum discloses a space existing between the web and walls (which would be the side walls in the combined teaching of Nakamura and Finnicum, since the curtain acts as the front and back sides of the enclosure), this does not prevent the enclosure from being present as claimed. Appellant provides no mention of side walls at all in the listing of the enclosure elements, so it is unknown if appellant's side walls would have a space between the walls and the web. In any case, a space between a wall and a web does not prevent the space from being "enclosed" or "sealed", because the pressure within such a

space can have a controlled pressure differential as described by Finnicum (column 4, lines 20-35), and thus is "enclosed" or "sealed" away from the outside atmosphere. As noted, the claim does not require that every bit of the enclosing be done with the specifically listed elements in the claim, and in fact, it would be hard to see how it could be "enclosed" with only those elements, since nothing is listed (as described or pictured in the present disclosure) that would seal off or enclose the sides of the system between the first and second curtains to allow the claimed pressure differential. As a result, the enclosure as claimed would allow for the presence of small gaps, as long as the claimed features are present, including the space that would be separated from the surrounding atmosphere; and as noted above, these features would be suggested by the combination of Nakamura and Finnicum.

Appellant also argues, at page 20 of the Appeal Brief, that none of the references teach the stabilizing of the curtain by providing a positive pressure in the space that is bounded by the curtain as in claim 46, and that the present invention is taught away from by Finnicum, in that the wall precludes the enhancement step brought about by the interaction of the space and the two application mediums.

The Examiner has reviewed these arguments, however, her position is maintained. As to the enhancing of curtain stability by using positive pressure, this would follow from providing the suggested pressure differential system and optimizing the specific pressure differential provided, for the particular curtain system used, as Finnicum suggests to optimize the pressures used in the enclosed area

bounded by the curtain to provide optimum stable, uniform curtains (column 4, lines 10-20 of Finnicum). Finnicum would indicate that "positive" pressure can be provided, because Finnicum provides that the described system can provide the air pressure control by admitting air into the pressure controlled zone (column 3, lines 60-68 and column 4, lines 1-20). As to the stabilizing the curtain from positive pressure between the curtains, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985), as the stabilizing as claimed simply follows from providing the negative pressures. In fact, Finnicum even notes the desire for a stable curtain (column 4, lines 15-20). As to the wall of Finnicum teaching away from the stabilization step brought about by the interaction of the space and the two application mediums, the Examiner disagrees with this position. Finnicum is described with regard to a single applicator curtain, therefore the curtain is described as acting as one wall of the enclosure (column 5, lines 1-8) and a different solid wall 21, for example, is provided as the other wall of the enclosure (column 3, lines 50-60, column 5, lines 25-35 and figure 1). This indicates the need for an enclosure system with walls. However, the combination of Nakamura and Finnicum is what suggests that if two curtain applicators are present, each curtain can serve as a wall. Finnicum does not teach against this use, as Finnicum clearly indicates that a wall of the enclosure system can be formed from the curtain (front or rear wall, column 5, lines 25-35, since the pressure

zone can be on either side of the curtain), and actually provides no requirement as to what wall 21 is to be formed from.

Appellant also argues, at page 20 of the Appeal Brief, that none of the references teach the combination of a doctor element intercepting a curtain that has flowed over a guideblade as claimed. Appellant goes on to argue, at page 20 of the Appeal Brief, that as a result of this stabilization of the curtain, benefits as to the total falling height of the curtain, and extent of the force of gravity which can be achieved overall can be increased, without penalties with regard to the quality of application medium layer, and allows approaching more closely the film stretching limit.

The Examiner has reviewed these arguments, however, her position is maintained. The suggestion as to the use of a guideblade over which the curtain flows is provided by Bulow; and the suggestion as to the use of a doctor element (blade) that intercepts the falling curtain is suggested by '129 as described in the **Grounds of Rejection** above. While Bulow does not individually teach to have the curtain from which the guideblade flows to be intercepted by a doctor element, and '129 does not individually teach that the curtain which is intercepted by the doctor element first falls from a guideblade, the combination of Nakamura in view of Finnicum with Bulow and '129 clearly provides this suggestion. Bulow provides desirable benefits to be gained by using a guideblade over with the curtain flows and '129 provides desirable benefits to be gained by intercepting a falling curtain with a doctor element (see the description of the benefits in the **Grounds of Rejection** above). One of ordinary skill in the art would

be suggested to provide both the guideblade and the doctor element as claimed to achieve the combined benefits when curtain coating. Appellant refers to benefits from the stabilization of the curtain (described at page 5, line 20 through page 6, line 4 of the present specification). It is unclear if applicant is (a) referring specifically to benefits from the use of the guideblade and doctor element, in which case, the Examiner notes that benefits would already be expected from the benefits taught by Bulow and '129 as discussed above, and the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985), or (b) referring to benefits caused by the entire combination of features of claim 46, in which case, the Examiner notes that benefits would also be expected from the combination of Nakamura in view of Finnicum, Bulow and '129 as discussed in the **Grounds of Rejection** above, and, again, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). The Examiner further notes that statement of benefits from the stabilization is a mere listing of benefits and no showing as to this issue with comparative data or the like has been made.

At page 21 of the Appeal Brief, appellant further argues that the invention has distinct advantages in combining of the elements of enclosing the space so the pressure

therein is utilized to affect the coating characteristics, and more particularly, the application of a positive or negative pressure in the space to enhance the wetting or stabilized the curtain falling from a guideblade positively influenced.

The Examiner has reviewed these arguments, however, her position is maintained. The benefits of the pressure utilization to enhance wetting or stabilization of the curtain are suggested by Finnicum and the guidblade/doctor element features and improvements are suggested by Bulow and '129. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Furthermore, appellant has provided no showing of any improvements as compared to the prior art or beyond what is expected.

4. Claim 39

At page 21 of the Appeal Brief, appellant notes that present claim 39 further requires that the pressure be provided with a pressure-differential device, said pressure-differential device being operatively (the Examiner notes that appellant used "operative" which is a typographical error) positioned between said first curtain applicator unit and said second curtain applicator unit. At pages 21-22 of the Appeal Brief, appellant further argues that the cited references to do not disclose the positioning of the pressure differential device operatively between the first and second curtain applicator units.

The Examiner has reviewed these arguments, however, her position is maintained. As discussed in the **Grounds of Rejection** above, the combination of Nakamura and Finnicum suggests providing a pressure differential space between the two curtains where pressure is adjusted by adding or subtracting gas to the space to raise (positive pressure) or lower (vacuum or negative pressure) the pressure in the space (note how Finnicum shows adding or subtracting pressure, column 4, lines 1-15). If the pressure differential device is considered part the pressure differential space, which is acceptable as worded, then the device is clearly operatively positioned between the first and second applicator curtain applicator units, because that is where the pressure differential space between the two curtains would be. If the pressure differential device is considered the "suction/blower box" as described earlier in the claim, that is, a system that provides vacuum (suction) or air (blowing) into the space, it would have been suggested to provide this operatively between the first and second curtain applicators, because while Finnicum shows conduits to perform this task entering the pressure differential space through the front and rear walls (see figures 1, 7), such conduits would have to be moved to a location such as the side walls or top ceiling when curtains formed both the front and rear walls, because the suction/blowing conduit still needs to be present to adjust the pressure and the only available solid walls to pass through would be the side walls or ceiling between the curtain applicators. The Examiner also notes that placement of such a device can be considered a matter of design choice, In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA

1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Ground B. The Rejection of Claim 35 under 35 USC 103(a)

Appellant argues, at page 22 of the Appeal Brief, that claim 35 is patentable because parent claim 24 is patentable for the reasons give above (as to **Ground A**).

The Examiner has reviewed this argument, however, her position is maintained. In the **Ground A Arguments** section above, the Examiner has maintained her position that claim 24 is not patentable, and that position is maintained here. Since no separate arguments were provided as to claim 35, she also maintains her position that claim 35 is not patentable.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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